



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,633	07/01/2003	Yingjian Chen	XYNANO-2	7738

7590 11/30/2005  
YINGJIAN CHEN  
1123 WISTERIA DRIVE  
FREMONT, CA 94539

EXAMINER

REIFSNYDER, DAVID A

ART UNIT PAPER NUMBER

1723

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/611,633

Applicant(s)

CHEN ET AL.

Examiner

David A. Reifsnnyder

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 and 18-21 is/are pending in the application.
- 4a) Of the above claim(s) 9-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 18-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/03</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of Invention I, Claims 1-8 in the reply filed on September 27, 2005 is acknowledged.

Claims 9-17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on September, 27, 2005.

### ***Claim Objections***

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are withdrawn, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 9-12 have been renumbered as claims 18-21, respectively.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4, 7, 18 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 4; the recitation of "the nanotube" lacks antecedent basis. (i.e. should "the nanotube" should be ---the nanotubes---?)

Regarding claim 7; the recitation of "applying an electric current the grid" is vague and indefinite because the recitation of "applying an electric current the grid" does not make sense.

Regarding claim 18; the recitation of "the grid of metal line" lacks antecedent basis and does not make sense. (i.e. should "the grid of metal lines" be ---the grid having metal lines?)

Regarding claim 19; the recitation of "neighboring metal lines of the grid" is vague and indefinite as to what is meant by "neighboring metal lines".

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4 and 8-10 are rejected under 35 U.S.C. 102(e) as being anticipated by French et al.

Regarding claims 1-4 and 8-10; French et al. discloses a method comprising: creating a plurality of nanotubes by one of arc discharge, laser evaporation and chemical vapor disposition, the nanotubes each having a substantially cylindrical wall and a plurality of magnetic atoms that are attached to the wall; aligning the nanotubes on a grid having metal lines, such that each of the nanotubes has a first portion that overlaps a metal grid line and a second portion that does not overlap the metal grid line; and removing the second portions by current burning. (col. 2, line 58 to col. 4, line 34)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5, 7, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over French et al. in view of Smalley et al. '425 B1.

Regarding claims 5, 7, 11 and 12; French et al. discloses the claimed invention except for the aligning of his plurality of nanotubes on the grid being done using a magnetic or electric field. Smalley et al. '425 B1 teaches on col. 4, lines 33-46, that it is known use a magnetic or electric field to align a plurality of nanotubes. It is considered that it would have been obvious to one having ordinary skill in the art at the time the invention was made to have aligned French et al.'s nanotubes on the grid using a magnetic or electric field, as taught by Smalley et al.'425 B1 because French et al.'s plurality of nanotubes need to be aligned on the grid somehow, and Smalley et al. '425 B1 teaches that using a magnetic or electric field to align a plurality of nanotubes is a conventional way to align nanotubes.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over French et al. in view of Smalley et al. '783 B1.

Regarding claims 5, 7, 11 and 12; French et al. discloses the claimed invention except for the aligning of his plurality of nanotubes being done by scanning a row of sharp tips over the grid. Smalley et al. '783 B1 teaches on col. 22, lines 43-55, that it is known scan a row of sharp tips on a grid to align a plurality of nanotubes. It is considered that it would have been obvious to one having ordinary skill in the art at the time the invention was made to have aligned French et al.'s nanotubes on the grid by scanning a row of sharp tips over the grid, as taught by Smalley et al. '783 B1 because French et al.'s plurality of nanotubes need to be aligned on the grid somehow, and Smalley et al. '783 B1 teaches that scanning a row of sharp tips over the grid is a conventional way to align nanotubes.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Reifsnyder whose telephone number is (571) 272-1145. The examiner can normally be reached on M-F 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda M. Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1723

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
David A Reifsnyder  
Primary Examiner  
Art Unit 1723

DAR